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NOTES ON GEOGRAPHIC DISTRIBUTION

# *Strobilurus torquatus* Wiegmann, 1834 (Squamata: Tropiduridae): New records from the Brazilian state of Paraíba and a geographic distribution map

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**ABSTRACT:** We provide the first records of *Strobilurus torquatus* from the Brazilian state of Paraíba and review its distribution based on specimens available in Brazilian collections and published data. This result emphasizes the need for more surveys on reptiles at this region.

The Tropiduridae is one of the most species-rich lizard families at the Neotropical region (Torres-Carvajal 2004). The family comprises 117 species distributed in eight genera – *Eurolophosaurus*, *Microlophus*, *Plica*, *Stenocercus*, *Strobilurus*, *Tropidurus*, *Uracentron*, and *Uranoscodon* (Uetz 2012). Tropidurids are widespread in Brazil, where a total of 35 species is found (Bérnils and Costa 2011), with representatives of the family having been recorded in all terrestrial biomes (Rodrigues 1987, Martinez *et al.* 2011).

The systematics of Tropiduridae went through a number of reviews in recent years (Jackson 1978, Rodrigues 1987, Frost 1992, Frost *et al.* 2001). Based on a cladistic analysis, Frost (1992) considered *Plica*, *Uracentron*, and *Strobilurus* to be junior synonyms of *Tropidurus*. Following this classification, *Strobilurus torquatus* Wiegmann, 1834 was renamed *Tropidurus strobilurus,* given that the binomial *Tropidurus torquatus* Wied, 1820 had already been assigned. More recently, Frost *et al*. (2001) presented molecular and morphological evidence that *Strobilurus* should be considered a distinct and valid genus, revalidating it.

*Strobilurus torquatus* (Figure 1A) differs from the other tropidurid species found in Northeastern Brazil due to the presence of a relatively shorter spiny tail with enlarged, heavily keeled and mucronated scales. It is considered a forest-dwelling heliophilic lizard, which feeds mainly on ants found on tree trunks at different levels in the forest, including the ground (Jackson 1978, Rodrigues *et al.* 1989). Its currently known distribution lies within the Brazilian Atlantic Forest, ranging from Rio de Janeiro state (Salles and Silveira 2010) at its southern end, and Pernambuco in the north (Rodrigues *et al.* 1989), and isolated rainforest enclaves within the semi-arid caatinga scrublands of Ceará, further west (Jackson 1978, Borges-Nojosa and Caramaschi 2003).

This study presents the first records of *Strobilurus torquatus* (Figure 2) from the Brazilian state of Paraíba, and reviews its geographic distribution based on the available published data, and including specimens deposited at herpetological collections of the following Brazilian institutions (see Table 1): Museu de Zoologia da Universidade de São Paulo (MZUSP) in São Paulo; Museu Nacional, Universidade Federal do Rio de Janeiro (MNRJ) in Rio de Janeiro; Universidade de Brasília (CHUNB); Universidade de Sergipe (CHUFS) in Aracaju; and Museu de História Natural da Universidade de Alagoas (MUFAL) in Maceió. A non-examined specimen from Espírito Santo state, whose record is available on Species Link (2010) was also included. This specimen is deposited at Museu de Biologia Professor Mello Leitão (MBML) in Santa Teresa, Espírito Santo.

The collections were authorized by the federal environment agency, through SISBIO/ICMBio permit number 33909-1. The specimens were deposited in the herpetological collection of the Universidade Federal da Paraíba, under catalog numbers CHUFPB 9163 and 10761.

One individual (Figure 1B) was collected at 15:02 h on February 23rd, 2012, in the Engenho Gargaú Private Natural Heritage Reserve (RPPN Engenho Gargaú), a 1058.62 ha remnant of Atlantic Forest inserted within a matrix of sugarcane plantations in the municipality of Santa Rita in Paraíba state, Brazil (6°59'52" S, 34°57'30" W). The area is covered with a well-preserved forest, canopy reaching up to 12-15 m in height (Figure 3A). The lizard had been partially ingested by a female blonde

capuchin monkey, *Sapajus flavius* Schreber 1774, which discarded its prey when disturbed. It was not possible to determine the sex of this individual.

A second specimen, a male, (Figure 1C) was collected on April 23, at Mata do Buraquinho, part of the Benjamin Maranhão Botanical Garden (JBBM), located in the municipality of João Pessoa, Paraíba (7°08'42" S, 34°51'54" W). The lizard was captured in glue traps installed in the tabular roots of a fig tree (*Ficus doliaria* Mart.) at the edge of a trail. Another individual was observed in the same tree at the same day, but not captured. The study area has irregularly continuous canopy of 15-25 m in height, with a well-developed shrubby understory (Figure 3B). This site has 515 ha of forest, and is located in the southwestern portion of João Pessoa municipality, and is one of the few Atlantic Forest remnants in northeastern Brazil inserted entirely within an urban matrix.

The present records of *Strobilurus torquatus* from Paraíba help fill the lacuna in its distribution at the northeastern of Brazil (Figure 3). The state of Paraíba have suffered intense deforestation for the cultivation of crops such as sugarcane (Campanili and Schaffer 2010) that may

**Figure 1.** A: *Strobilurus torquatus* observed and not collected at RPPN Engenho Gargaú, Santa Rita, Paraíba (Brazil). Photograph by Caio Brito. B: *Strobilurus torquatus* (CHUFPB 9163) collected at RPPN Engenho Gargaú, Santa Rita, Paraíba (Brazil). The specimen was discarded by a female blonde capuchin monkey, Sapajus flavius, when disturbed. Photograph by Keoma Rodrigues. C: *Strobilurus torquatus* specimen (CHUFPB 10761) from Mata do Buraquinho, Benjamin Maranhão Botanical Garden, João Pessoa, Paraíba (Brazil). Photograph by Fagner Delfim.

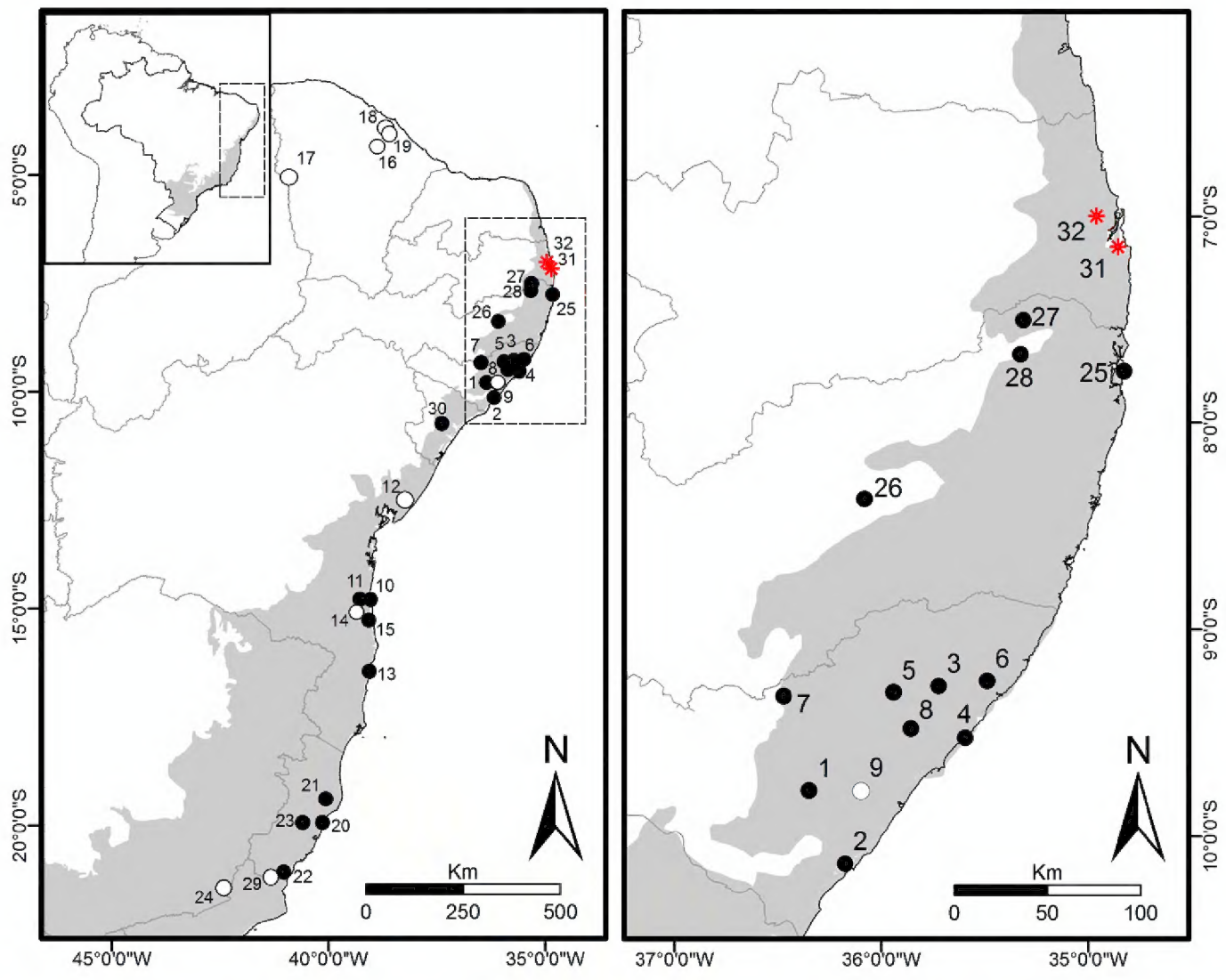


**Figure 2.** Known geographic distribution of *Strobilurus torquatus*, including the new records reported here. Black Circles = collection specimens; White Circles = published records; Red Asterisks = new records from Paraíba. Legend: Alagoas state: 1 – Campo Alegre; 2 – Coruripe; 3 – Flexeiras; 4 - Maceió, Ipioca; 5 – Murici; 6 – Passo de Camaragibe; 7 – Quebrangulo; 8 – Rio Largo; 9 – São Miguel dos Campos; Bahia state: 10 – Ilhéus; 11 – Itabuna; 12 – Mata de São João; 13 – Porto Seguro; 14 – São José da Vitória; 15 – Una; Ceará state: 16 – Baturité; 17 – Ibiapaba; 18 – Maranguape; 19 – Pacatuba; Espírito Santo state: 20 – Aracruz, Santa Cruz; 21 – Linhares; 22 – Presidente Kennedy; 23 – Santa Teresa; Minas Gerais state: 24 - UHE Barra do Braúna; Pernambuco state: 25 – Itamaracá; 26 – São Caetano; 27 – Timbaúba; 28 – Vicência, Água Azul; Rio de Janeiro state: 29 - Pedra do Garrafão; Sergipe state: 30 – Serra de Itabaiana; Paraiba state: 31 – João Pessoa; 32 – Santa Rita.

have accentuated the difficulty in recording forest dwellers reptilian species, as *S. torquatus*.

One of the locations, where the species was recorded has been sampled intensively for at least three years (Santana *et al.* 2007 and later by Pereira-Filho, unpublished data). Even with such efforts the species has not been found, what may indicate a low abundance or deficiency in sampling methods. We believe that our findings demonstrate important records for the distribution of *S. torquatus*, and enhance the importance of more and better sampling efforts at the Atlantic Forest areas in the Northeast of Brazil.

**Figure 3.** Habitat on which the specimens of *Strobilurus torquatus* were collected at the Brazilian state of Paraíba : A - RPPN Engenho Gargaú, Santa Rita (6°59'52" S, 34°57'30" W). Photograph by Keoma Rodrigues; B – Mata do Buraquinho, Benjamin Maranhão Botanical Garden, João Pessoa (7°08'48.31" S, 34°51'23.20" W). Photograph by Suênia Oliveira.

**Table 1.** Records of *Strobilurus torquatus* based on museum specimens and literature data. Acronyms: CHUNB –Herpetological Collection of the Universidade de Brasília; MZUSP – Museu de Zoologia da Universidade de São Paulo; MUFAL – Museu de História Natural da Universidade Federal de Alagoas ; CHUFS – Herpetological Collection of the Universidade Federal de Sergipe; MNRJ – Museu Nacional do Rio de Janeiro, Rio de Janeiro; MBML – Museu de Biologia Professor Mello Leitão (Species Link data). * New records.

| LOCALITY | STATE | LATITUDE | LONGITUDE | REFERENCE |
|---|---|---|---|---|
| Campo Alegre | Alagoas | 9°46'46.27"S | 36°21'01.20"W | MUFAL 6720 |
| Coruripe | Alagoas | 10°08'00.62"S | 36°10'33.89"W | MUFAL 6227 |
| Flexeiras | Alagoas | 9°16'21.54"S | 35°43'25.92"W | MUFAL 1918 |
| Maceió, Ipioca | Alagoas | 9°31'27.52"S | 35°35'45.15"W | MUFAL 5410 |
| Murici | Alagoas | 9°18'17.64"S | 35°56"30.24"W | MUFAL 1781 |
| Passo de Camaragibe | Alagoas | 9°14'55.18"S | 35°29'24.41"W | MNRJ 3404 |
| Quebrangulo | Alagoas | 9°19'24.14"S | 36°28'27.85"W | MNRJ 3906 |
| Rio Largo | Alagoas | 9°29'48.71"S | 35°51'28.76"W | MUFAL 441 |
| São Miguel dos Campos | Alagoas | 9°46'48.68"S | 36°05'54.05"W | Jackson 1978 |
| Ilhéus | Bahia | 14°47'49.84"S | 39°02'03.84"W | MNRJ 3441 |
| Itabuna | Bahia | 14°47'21.40"S | 39°16'40.09"W | MZUSP 29626 |
| Mata de São João | Bahia | 12°27'43.00"S | 38°14'01.00"W | Fonseca *et al.* 2012 |
| Porto Seguro | Bahia | 16°27'04.04"S | 39°03'52.79"W | MZUSP 95220 |
| São José da Vitória | Bahia | 15°05'00.00"S | 39°21'00.00"W | Rodrigues *et al.* 1989 |
| Una | Bahia | 15°16'10.43"S | 39°04'09.92"W | MZUSP 91625 |
| Baturité | Ceará | 4°19'40.56"S | 38°53'04.55"W | Borges-Nojosa and Caramaschi 2003 |
| Ibiapaba | Ceará | 5°03'00.00"S | 40°55'00.00"W | Borges-Nojosa and Caramaschi 2003 |
| Maranguape | Ceará | 3°53'26.39"S | 38°40'54.74"W | Borges-Nojosa and Caramaschi 2003 |
| Pacatuba | Ceará | 3°58'57.63"S | 38°38'13.28"W | Borges-Nojosa and Caramaschi 2003 |
| Aracruz, Santa Cruz | Espírito Santo | 19°56'02.61"S | 40°08'18.89"W | MZUSP 36715 |
| Linhares | Espírito Santo | 19°23'21.42"S | 40°0352.25"W | MZUSP 30747 |
| Presidente Kennedy | Espírito Santo | 21°05'16.95"S | 41°01'55.45"W | CHUNB 24129 |
| Santa Teresa | Espírito Santo | 19°56'08.16"S | 40°36'01.08"W | MBML 281 |
| UHE Barra do Braúna | Minas Gerais | 21°26'42.36"S | 42°25'43.68"W | Costa 2011 |
| João Pessoa | Paraíba | 7°08'48.31"S | 34°51'23.20"W | CHUFPB* |
| Santa Rita | Paraíba | 6°59'52.30"S | 34°57'30.65"W | CHUFPB* |
| Itamaracá | Pernambuco | 7°44'58.57"S | 34°49'39.72"W | MZUSP 21481 |
| São Caetano | Pernambuco | 8°22'09.00"S | 36°04'60.00"W | MZUSP 66131 |
| Timbaúba | Pernambuco | 7°30'11.17"S | 35°18'50.46"W | MNRJ 12940 |
| Vicência, Água Azul | Pernambuco | 7°40'06.32"S | 35°19'38.84"W | MZUSP 23072 |
| Pedra do Garrafão | Rio de Janeiro | 21°12'18.00"W | 41°20'27.60"W | Salles and Silveira 2010 |
| Serra de Itabaiana | Sergipe | 10°44'18.91"S | 37°23'03.22"W | CHUFS 363 |

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